





GIFT OF
W.N.Heald

ANNUAL REPORT
— OF THE —
COMMISSIONERS AND AUDITOR
— OF THE —
HIGHWAY PRECINCT
— IN —
LITTLETON, N. H.,
— FOR —
THE YEAR ENDING MARCH 1, 1893.

*Including the Report of G. H. Allen, C. E., and
the “Act to create the Littleton Village Dis-
trict by uniting the Highway Precinct and the
Fire District,” passed at the session of 1893.*

LITTLETON, N. H.:
COURIER PUBLISHING COMPANY, PRINTERS,
1893.

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RECEIPTS.

Geo. A. Edson, town treasurer, amount due from town March 1, 1892		\$1,121 67
Geo. A. Edson, town treasurer, taxes 1892, as per orders		5,783 91
Mrs. C. M. McCoy, account of sidewalk	\$ 25 00	
Drain pipe sold	15 70	
	<hr/>	40 70
		<hr/>
		\$6,946 28

DISBURSEMENTS.

E. H. Wells, nails and oil	\$ 1 03
Eliot Wells, one day with team	2 25
S. C. Stevens, 6 $\frac{1}{4}$ days' labor	12 50
P. Sylvester, 8 $\frac{1}{2}$ days' labor	12 75
R. Munn, 8 days' labor	12 00
C. & M. R. R., freight machine castings	25
J. Rancour, 3 $\frac{1}{2}$ days' labor	5 25
O. C. Northey, 9 8-10 days' labor	14 70
L. Plant, 3 1-2 days' labor	5 25
Edson & Bailey, 2000 ft. 6 in. pipe ; 12 6 in. bends ; 12 6 in. tees ; 12 6 in. Ys,	145 19
W. I. Richardson, 2 1-6 days surveying	6 50
R. Munn, 10 days 3 $\frac{1}{2}$ hours labor	15 35
James Mehan, 24 8-10 days labor	37 20
P. Dufault, 16 days labor	24 00
B. Arsenault, 16 $\frac{1}{2}$ days labor	24 75
H. D. Bishop, 2 days labor each of Fitzgerald, F. Wells and E. Wells, stone lifter and teams	16 75

3

W. A. Lyster, use of tools and 7 $\frac{1}{2}$ days labor	21 60
E. Carr, 7 days labor with team	24 50
N. Trepannier, 5 days labor	7 50
P. Dufault, 2 days labor	3 00
E. Quessy, 12 days labor	18 00
R. Munn, 3 days labor	4 50
H. H. Williams, 3 9-10 days labor	5 85
W. I. Richardson, 2 days surveying	6 00
A. McLeod, 12 1-2 days labor	18 08
N. Trepannier, 24 days, 1 1-2 hours labor	36 08
Edson & Bailey, 1610 ft. 15 in. drain pipe	\$2,012 50
24 ft. 15 in. Ys	135 12
	<hr/>
	\$2,147 62
75 per cent.	1,610 71
	<hr/>
	536 91
B. Arsenault, 23 8-10 days labor	35 70
Rent of Coburn barn April, May and June, 1892	9 00
W. H. Sulham, 4 3-4 days labor with team	16 62
N. Anuel, 48 1-2 days labor	72 75
B. Arsenault, 3 days labor	4 50
R. Munn, 3 days labor	4 50
R. McRae, 9 days labor	12 00
S. D. Tilton, 317 yards concrete	\$ 317 00
581 1-2 yards concrete @ 60	348 90
41 yards concrete @ 35	14 35
	<hr/>
	680 25
J. Harrington, 1 days labor	1 50
P. B. Watson, 2 8-10 days labor	4 20
N. Trepannier, 3 days labor	4 50
B. Arsenault, 9 days, 1-2 hours labor	12 08
W. H. Sulham, 10 days labor with team	35 00
A. Dunn, 54 days labor	81 00
A. C. Gaskill, 13 days labor with machine	26 00
W. H. Sulham, two days labor with team	7 00

4

Edson & Bailey, 1020 ft. 15 in. drain pipe	\$1,275 00
12 each 15 in. Ys and tees	135 12
375 ft. 15 in. drain pipe	468 75
600 ft. 6 in. drain pipe	180 00
6 6x4 Ys	8 10

 2,066 97

75 per cent.

 1,550 22

		516 75
W. H. Sulham, 2 days labor with team		7 00
Mileage for engineers to and from Manchester		6 65
R. McRae, 4 days labor		6 00
J. McKelvie, 1 days labor		3 50
F. Bartlett, 42 1-2 days labor		63 75
J. McKelvie, 1-2 days labor		1 75
J. Place, 2 days labor		7 00
J. Lamere, 6 days labor		9 00
C. S. Goodwin, 2 4-10 days labor		3 00
W. H. Sulham, 1-2 day labor with team		1 75
R. B. Marsh, 5 1-2 days labor		8 25
D. Gagnon, 12 days labor		18 00
J. Bean, Jr., 7 1-2 hours labor		2 62
J. White, 15 1-3 days labor		23 00
J. G. Berry, 21 1-2 days labor		32 25
A. McLeod, 10 3-4 days labor		16 12
P. Dufault, 16 7-10 days labor		24 85
G. Lamere, 7 2-10 days labor		10 70
B. Arsenault, 17 days labor		25 50
R. McDonald, 26 1-2 days labor		39 75
J. Robinson, 7 6-10 days labor		11 40
C. H. Hutchinson, 8 hours on traps	\$ 3 20	
Brass	63	
4,233 lbs. castings	126 99	
	<hr/>	
	\$130 82	
Less	1 70	
	<hr/>	
		129 12

N. Trepannier, 22 1-2 days labor		\$ 33 75
W. H. Sulham, 2 1-2 days labor with team		8 75
W. A. Crane, 38 4-10 days labor		76 80
C. & M. R. R., freight castings		7 14
S. Elliott, 10 days labor		15 00
C. Nurse, 3 2-10 days labor		4 80
E. Quessy, 3 days, 1 2-3 hours labor		4 75
W. I. Richardson, 18 1-2 days labor		55 50
E. Quessy, 60 6-10 days labor		90 90
H. Brown, 2 days labor with team		4 50
P. Bruso, 1-2 days labor		75
C. O. Nurse, 1 1-2 days labor		2 25
W. B. Smith, labor and teams		7 87
Henry Plant, labor and teams		14 00
G. Strong, 2 days labor		3 00
G. West, 42 1-10 days labor		63 15
F. H. Buck, 4 days labor		6 00
C. A. Parker, labor and materials		56 07
S. D. Tilton, 368 yards concrete @ .35	\$128 80	
52 yards concrete @ 60	31 20	
	<hr/>	160 00
D. Quimby, 4 1-2 days labor		6 75
T. Rancour, sharpening picks		3 89
G. K. Morrison, 3 days labor		4 50
C. H. Gray, 190 7-10 days labor		298 00
Bellows & Son, 173 ft. lumber, \$2.59; 16 hours of man, \$2.40		4 99
Fitzgerald & Burnham, patterns, stakes, table, etc., for engineers		15 60
C. H. Applebee, sharpening tools		5 00
H. McGoray, sharpening tools		1 35
C. Young, 4 days labor with team		14 00
C. Eastman, 12 days labor man and team		42 00
H. Richardson, labor and covering stones		36 25
H. A. Eaton, sidewalk and repairing rack		15 00

6

I. C. Richardson, for team and man 11		
days with machine	\$ 77 00	
6 days, 2 horses and man	21 00	
Team	1 00	
Plank	1 50	
	<hr/>	100 50
F. M. Richardson, board of engineers		28 50
W. B. Smith, labor self and team		10 50
Courier Publishing Co., printing reports		12 00
G. W. Richardson, bill lumber		127 86
A. W. Bean, 4 1-10 days labor		6 13
Farr & Jarvis, 4 days labor man and team		14 00
Cardinal & Son, 972 ft. plank	\$ 9 72	
361 ft. timber	4 32	
4 posts	40	
	<hr/>	14 44
E. Quessy, 2 1-2 days labor		3 75
A. Foss, 23 17-21 days labor with team		50 00
G. Vago, 3 1-3 days labor		5 00
T. M. Stevens, 3 days labor		4 50
Littleton Lumber Co., bill lumber		209 74
G. H. Tilton, rent Coburn barn 3 months		9 00
E. Simpson, lead pipe and labor		1 10
G. H. Allen, 2 men 2 1-2 days, Main and		
Union streets	\$ 20 00	
Work on profile 3 days, Main and		
Union streets	18 00	
Survey for system 18 1-2 days @ 6	111 00	
Survey for system 15 1-2 days @ 2	31 00	
Work on plans and profiles 48 3-4 d. @ 6	292 50	
Work on plans and profiles 4 1-2 d. @ 2	9 00	
Hotel and R. R. expenses paid	9 75	
Materials for plans, etc.	10 25	
	<hr/>	501 50
Smith & Lynch, nails, etc.		46 31
F. A. Robinson, services 11 1-4 days		28 13

C. Y. Cheney, 2 days labor	\$ 3 00
G. H. Tilton, rent of Coburn barn 4 2-3 months	14 00
C. H. Gray, 19 8-10 days labor	29 70
A. Foss, 87 2-10 days labor with team	185 00
F. A. Robinson, mileage for engineers	12 92
Mrs. C. M. McCoy, use of sewer 2 years	10 00
A. Plant, logs for highway	8 00
I. F. Pennock, 1 day, 6 2-3 hours labor	2 50
R. P. White, 1 lantern	65
Edson & Bailey, cement, powder, fuse, etc.	74 59
J. Callahan, 65 8-10 days labor	82 25
Ladd & Bunker, sharpening bars, picks and drills	32 20
Carl Simpson, 13 days with engineers	6 50
English & Bond, salt	1 30
C. H. Morrill, 3 bushels salt	1 50
R. K. Stevens, 3 days with team	6 75
D. C. Phillips, labor on highway	14 00
C. A. Parker, labor on highway	2 25
D. C. Remich, for crossing front of B. W. Kilburn's	5 00
E. Quessy, 25 days labor	37 50
W. I. Richardson, 2 days surveying	6 00
E. B. Wallace, blank books	3 00
J. T. Simpson, 250 1-2 days labor @ \$2.50	626 25
J. T. Simpson, 222 days use of single team @ 75c.	174 00
J. T. Simpson, 31 days use of horse and cart @ 75c.	23 25
Expenses of commissioners to Lancaster	4 26
C. F. Eastman, services 20 3-4 days	51 87
G. W. Richardson, 2 loads saw-dust	50
Postage and stationery	1 00
Julia O. Jackson, for sand	2 25

\$6,649 31

RECAPITULATION MARCH 1, 1893.

RECEIPTS.

Town treasurer, amount due from town	
March 1, 1892	\$1,121 67
Town treasurer, taxes for 1892 as per orders	5,783 91
Mrs. C. M. McCoy, account of sidewalk, \$25.00; drain pipe sold, \$15.70,	40 70
	<hr/> \$6,946 28

DISBURSEMENTS.

For labor, materials and use of teams	\$6,649 31
Balance cash in hands of the commissioners	296 97
	<hr/> \$6,946 28

FINANCIAL STANDING OF HIGHWAY PRECINCT IN LITTLETON, N. H., MARCH 1, 1893.

ASSETS.

2116 man-hole castings @ 3 1-2	\$ 74 06
1830 ft. 15 in. drain pipe @ 32	585 60
28 15 in. Ys @ \$1.42	39 76
9 15 in. tees @ \$1.42	12 78
500 ft. 6 in. drain pipe @ 9	45 00
9 6x6 Ys @ 32	2 88
8 6 in. bends @ 30	2 40
9 6x6 tees @ 32	2 88

600 ft. 4 in. drain pipe @ 7	\$ 42 00
4 4 in. tees @ 25	1 00
9000 sidewalk brick @ 5	45 00
1 stone lifter and chains	34 00

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	\$ 887 36
Cash on hand	296 97

Total assets	<hr/>
	\$ 1,184 33

Respectfully submitted,

JOHN T. SIMPSON,	} Commissioners of the
CHAS. F. EASTMAN,	
FRED A. ROBINSON,	
	} Highway Precinct in
	} Littleton, N. H.

Examined and found correct,

O. G. HALE, Auditor.

Littleton, N. H., March 1, 1893.

—✻ REPORT AND ESTIMATE ✻—

FOR

SEWERAGE SYSTEM

— AT —

LITTLETON, N. H.

—
GEORGE H. ALLEN, CIV. ENG.

—✻ JANUARY 14, 1893. ✻—

MANCHESTER, N. H., Jan. 14th, 1893.

*To J. T. Simpson, C. F. Eastman and F. A. Robinson members
of the Board of Street Commissioners for the Town of Littleton,
N. H.*

DEAR SIRs :

In accordance with the contract made with you May 24th, 1892, to make a survey and design a system of Sewerage for your town, I commenced the work July 25th, and now have the pleasure of returning to you the plans and a report of the results of that survey and investigation.

The subject of sewerage treated scientifically is of comparative recent date, but "the importance of effective drainage and sewerage has been shown in so many reports from professional men and government commissions, that its influence on health, strength, and length of life is gradually beginning to be generally understood. The results of all inquiries abundantly demonstrate that drainage and sewerage are essential elements of health in populous districts. Independently, of actual loss of life which so frequently attends their neglect, impaired mental or bodily vigor, arising from the influence of defective drainage and sewerage, reduces daily in thousands of cases the capabilities of individuals to such an extent, that it may be considered equivalent to loss of income by the deterioration or diminution it induces in the effective services which each can give to his occupation. Calculated as a matter of profit and loss, everything indicates that the expense required in establishing proper measures to avoid these evils would be far below the loss consequent upon the inefficient arrangements too frequently witnessed at present."

Various methods have been tried for the disposal of House Offal and excrement, such as Earth Closets, destroying by Chemi-

cals, and various other ways, but experiments, and health Statistics show that the only safe method for the health of the public, is the one by which the sewage is carried away from the premises in the shortest possible time and has been called the water carriage system, or allowing the solids to be carried away in pipes by the waste water of the house.

There are two systems of sewerage called the Seperate, and Combined Systems, by the first, only the house drainage is provided for, by the second, both the house and surface water are provided for in the same pipe. I prefer the Combined System and have so designed your system, for if the Seperate System is used other sewers must be laid to take away the storm water thus adding greatly to the cost. House drains have got to be laid at a certain depth in order that all connections may be made and a suitable grade obtained this depth is always greater than is absolutely necessary for surface drains, which is no injury, so that the Combined System will cost just the difference between the cost of the two sizes of pipes, more than the first half of the Seperate System, while that system will require an additional trench and pipe. Considerable has been written for and against the two systems during the last few years, and in a much more able manner than I can, so that I will not take up your time with this discussion, but refer you to these writings, neither will I take up your time with a discussion of the theory and service of rainfall, flow of pipes and other scientific questions, upon all of which there are plenty of published works much more complete than time or space will permit here.

THE WORK.

A complete and accurate survey and map has been made of the Village from Glenwood Cemetery to and around the hill east of Apthorp. Profiles have been made and sewer grades established on Saranac, Main, Union, South and High Streets, also the two main streets of Apthorp.

SEWER MAINS.

The main sewer for the north side of the river is to be a 15 inch Akron pipe discharging into Ammonoosuc river just below the Saranac Glove Works, thence through Saranac, Main and Union streets to the Grange Building.

South of the river, a 15 inch pipe discharging into the river just below the Saranac dam and following the river bank nearly to Cottage street thence in Cottage street to South street.

OTHER SEWERS.

All other sewers are 10 and 12 inch pipe to be located as shown on the plan. It will be observed that I have not in all cases taken the sewage in the shortest and most direct course to the main for instance a part of School street is turned into Oak Hill Ave., thence by Pleasant and Cross street to the main. This is done in order to retard the water in cases of heavy showers. The streets leading from Main are all so steep that if the entire side hill was allowed to come down with a rush it might overload the main and possibly do damage to property.

The High street sewage is divided, a portion being taken into Pleasant street and a portion down Maple street, this division is made to conform to the surface of the ground. It will be necessary, in order to drain a portion of Pleasant street east of the Chiswick Inn to run a 12 inch main down the valley of Palmer Brook direct into the river, Lafayette Avenue must be discharged directly into the river for the present.

Many of the buildings on the south side of Main street have such low basements that in order to drain them into the main sewer would cause such deep digging as to nearly double the expense, of constructing the main. I find that it would be cheaper

and I think on the whole better to build a 12 inch sewer from the Saranac street manhole in front of Mr. Buckley's, in the rear of the buildings, to the rear of Littleton Opera House as shown on the plan. South street is divided into three systems, a portion being taken into Cottage street, a portion down the street in valley of the brook and a portion down Bridge street.

I have not shown anything West of the Junction of Main and Meadow streets, as those streets can be drained into the river at any point as they are below the dams and the thickly settled portion of the village.

The location of the sewers in Oak Hill avenue, West of School Street and in Bronson street may possibly have to be changed when the streets are built, as the locations have been made since I was there.

APTHORP DISTRICT.

The natural outlet for this district is by way of Union street, to and down the valley of Palmer brook. The map shows this main as discharging direct into the river, this should only be allowed temporarily. A 12 inch main should start from the manhole on the river bank just West of Cottage street, passing under the street, thence in the most direct line consistent with the surface of the ground to the railroad bridge, thence under the river bed across the foot of Lafayette avenue, taking in that sewer then under the river again near the railroad bridge, then by the most available ground and under the river to the outlet shown on the plan. I have not shown this as a part of the system, for the reason that when I was in Littleton, I proposed to drain Apthorp into the river just below the old Scythe shop, but after making the profiles I found it would require excavations varying from eight (8) to seventeen and one half (17 1-2) feet, or an average of twelve and three-fourths (12 3-4) feet, while the other way only an average of eight and one-half (8 1-2) feet would be required. As Union

street will eventually need a sewer no extra expense will be incurred. Having as I said the Scythe shop plan in my mind, I did not locate a line through the field in the bend of the river, but as this is a question of the future, your engineer Mr. W. I. Richardson or any other engineer can easily do this when the time comes.

PIPE LAYING.

I should recommend the use of the Akron sewer pipe in all cases, and for the 12 and 15 inch pipe should use the ring in preference to the socket pipe, as smoother joints and better alignment can be made. All warped and irregular burned pipe, and all pipe with rough surface and wind puffs should be condemned and nothing but smooth, straight and perfect pipe used.

In the laying of Akron pipe the mason should be provided with rubber mittens, he can then carefully pack and smooth the cement in and around the joints. The inside of the joint should be carefully smoothed by hand, and each length of pipe thoroughly cleaned out as soon as laid, that there may be no projecting bunches of cement left at the joint or droppings in the body of the pipe, to form a lodging place for any solid substance passing through the sewer, a very small obstruction will stop the first particle that reaches it, on that the sediment will gradually accumulate, until in time you will find the sewer blocked and the town put to large expense to cleanse it, to say nothing of a possible or probable damage to property by a set back into the cellars. All earth and sand from the trench should be kept out of the sewer, and every night the end of the completed portion solidly stuffed with sacking or some suitable material and covered with a wooden cover as large as the outside diameter of the pipe, to prevent the washing in of earth, in case of sudden showers during the night. Should any such accident occur, the sewer should be thoroughly flushed and cleaned with a hose attached to the nearest hydraunt before proceeding further. Should there be water in the trench it should be dammed back, until the cement joints have had an hour or two to set, it can then be passed off through the sewer, care being taken to keep out the sand,

PREPARING THE TRENCH.

I accidentally omitted this subject in its proper place which should have been before the preceding.

For purposes of economy the trenches should be as narrow as possible and have room to work, and the sides nearly vertical where the earth will stand alone. For small pipe four (4) feet on top and eighteen inches larger than the outside diameter of the pipe will answer. The bottom of the trench should be one inch below the profile grade for the water line of the Sewer, the last six inches should be scooped as nearly as possible to the shape of the sewer and the places for the rings and sockets dug out with a trowel in order that the body of pipe may have a solid bearing its entire length.

In wet and boggy places it would be well to excavate one foot below grade and fill in with sand and in very soft places it would be well to lay plank in the bottom.

Trenches that will not stand should be carefully braced, and very deep trenches should be cribbed at the bottom no matter what the material is. In building cribs in trenches it has been customary to use joists for bracing from side to side, a great deal of time is consumed in placing, and removing them also much valuable space. A recent invention that is more economical both in time and space, is a pipe screw with screws and caps alike at each end and like the common jack screw. For a trench 8 or 9 feet deep and 48 inches on top by 40 inches on the bottom it will require for each 16 feet in length of trench,

2 Screws 36 inches long, closed.

2 " 30 " " "

2 " 24 " " "

Lumber for the same length.

10 Pieces 2 x 10, 16 feet long.

36 " 1 x 10, 7 " "

4 " 2 x 8, 7 " "

4 " 3 x 6, 16 " "

4 " 3 x 6, 1 " "

A total of 550 feet board measure.

Springs are sometimes encountered in the trenches, in such cases the water from them should be conducted to the outside of the trench at some convenient place by a 4 or 6 inch tile pipe laid below or alongside the main sewer.

DEPTH OF SEWERS.

Sewers should not be less than eight feet in depth at their highest point, except in some very exceptional cases. Where the sill of houses are three feet above the street, the sewer will be eleven feet below the sill, the present modern appliances of furnace and steam heating require cellars of about 7 feet depth, the house drain should be 12 inches below the cellar bottom and should enter the main on the upper quarter or 9 inches above the water line in 12 inch sewers, this will leave 2 1-4 feet full for house drain from rear of buildings to centre of street, which is but little above the least allowable grade for house drains which should never be less than 1-4 of an inch per foot in length.

BRANCHES.

It would be well while laying the Sewer to put in Y branches at all such places as are likely to be needed for house connections, and if they are not used at the time the branch can be plugged with a plug which is prepared for that purpose and cemented in, these plugs can be ordered with the pipe. An accurate record of their location should be kept, so they can be easily found. If this is not done you will have to break the pipe whenever a connection is made and in doing this there is danger of cracking the pipe each side, and the break not detected until it causes damage.

OVERFLOW PIPES.

You will notice on the plan that I have shown an overflow pipe near the Free Will Baptist church and at Cotiage street. These overflows should be one foot above the water line of the main sewer, so that the ordinary flow of sewage will not enter them. Whenever you cross an old sewer running direct to the river, they can be utilized as overflow and may be connected either by a manhole or a Y branch turned to the upper quarter.

BACK FILLING.

The back filling to a depth of one foot over the pipe, should be placed into the trench, in a careful manner, in layers of not more than six inches in thickness, and each layer carefully tamped or puddled under and around the pipe until every square inch of surface has a solid bearing, no stones being allowed to go into the trench until the sewer is completely covered.

GRADE AND LINE.

The sewers should be laid carefully to line and grade, the grade to be sufficient to make them self-cleansing, and in no case less than 3-10 of a foot in 100 feet. The grade and line may be marked by means of batters set across the trench a uniform height above the water line with a nail in the top showing line, a cord being stretched from board to board and the depth obtained with a measuring pole. In very deep trenches and flat grades pegs should be driven in the bottom of the trench.

MANHOLES AND LAMPHOLES.

There should be a manhole at every sewer junction, and a manhole or lamphole at every angle, both in line and grade, for the purpose of ventilation, facility in examination, and ease in cleansing in case of obstruction.

Lampholes are made of 6 in. Akron pipe rising vertically from the top of the sewer from a T branch, covered with an iron cover. They should be carried up with the filling, and great care taken that they are perfectly vertical. In wet places it may be necessary to lay a cement concrete bottom to prevent settling. Lampholes are for the purpose of lowering lights in order to inspect the sewer.

Manholes are to be built of brick, to be oval-shaped 2 1-2 x 4 feet for straight work, as shown on the plan. But at the junction of two or more sewers the shape of the bottom must be so varied as to perfectly enclose the pipes. The top, 1 foot below the surface of the street, should be 26 inches in diameter, circular to receive the iron casting, (see plan). They should be built of hard-burned brick carefully laid in cement mortar, plastered inside and out with cement, the walls eight inches thick, the bottom eight inches thick, composed of two courses of brick so laid as to break joints, and covered with cement mortar. This coating must be flush with the water line of the sewer. After the mortar on bottom and sides have thoroughly set and hardened it should be washed with a thin coat of pure cement in order that any cracks or air spaces caused by setting may be thoroughly filled. If so desired eight-inch iron pins may be set in the side, projecting four inches and two and one-half feet apart, forming a step ladder for ascending and descending, or a common ladder may be used. In very wet places a concrete bottom six feet in diameter and eight inches thick may be necessary in order to prevent settling. The covers are of iron and perforated samples of which you already have, so I need not describe them.

CATCH BASINS.

The catch basins should be circular brick wells as shown in the plan, 3 1-2 feet inside diameter, 7 feet deep, the sides vertical for a height of 4 feet, then drawing in to fit the grate, a sample of which you already have, the walls to be 8 inches thick, laid in cement mortar and coated inside and out with the same. It would be well to use Portland cement for the inside as high as the top of the trap. The trap, grating, curb-stone, etc., are shown in plan, and you already have samples of them,* so that I need not describe them.

The catch basins should be thoroughly cleaned out once a month, and in time of drought care should be taken that the traps be kept thoroughly sealed by putting water from the hydrants.

FLUSHING.

A flushing tank should be placed at the termini of all large sewers, there are various kinds of tanks of which I think the Field Tank is the best, its cost is about \$75.00 but is not in any case included in the estimate.

The city of New Haven has a system peculiar to itself, the outfit is much cheaper and your highway surveyor could use it without additional expense. The outfit consists of several lengths of common hose of the same diameter as the sewer, several wooden balls or slugs 12 inches long with hemispherical ends, the diameter of slugs to be one inch less than the diameter of the sewer, and one of the old style vertical tub watering carts, a cord being attached to the ball or slug equal in length to the distance between the manholes. The ball is first placed in the sewer pipe, with the cord passing from it freely to the surface of the ground and allowed to pay out as fast as the ball moves, the end of the

canvas hose is then inserted into the sewer pipe, and a stream of water, the full size of the pipe, allowed to enter from the water tank, the force of the water will carry the ball along until it meets an obstruction, when it stops and the action of the water around the ball will gradually wear away and remove the obstruction, when the ball appears at the next manhole you will know the sewer is clean.

The Automatic tank has the advantage of being always at hand and working at frequent and regular intervals, and is subject to the caprice of no man.

When a sewer is clogged a common fire hose inserted into the pipe below the obstruction and allowed to play upon it will in most cases remove the obstruction.

SEWER CONNECTIONS.

All sewer connections, either from house drains or catch basins, should be made by a Y branch turned on to the upper quarter of the sewer. These connections should be made under the direction of some competent town official appointed for that purpose, and not left to any and every man who thinks he can lay sewer pipe. More damage can be done in one season to sewers by incompetent workmen making connections, than would pay for half a dozen competent inspectors.

VENTILATION.

All sewers should be ventilated by means of the perforated manhole cover, and great care taken that at the dead end of all sewers the gas should have a free chance to escape through the manhole. I find that highway surveyors seem determined to bury

the manhole covers with gravel, this should not be done, great care should be taken that the covers be kept clean and the apertures open for the escape of gas. House drains may be ventilated by a stand pipe, from the basement trap alongside the chimney through the roof.

BROOKS AND WATER COURSES.

Whenever brooks and other surface waters are received into sewers they must first be taken through a catch basin, in order that all sticks, leaves, gravel and sediment of any kind may be prevented from entering and clogging the sewer. A failure to do this will in every case cause trouble.

ESTIMATES.

Estimates of cost have only been made of such streets as were profiled and in no case have I included Catch Basins and Flush Tanks.

SARANAC STREET.

1490 ft. 15 inch Akron pipe @ 0.62	\$923.80
20 Bbls. Cement @ \$1.50	30.00
4 Manholes,	233.00
3 Lampholes,	60.00
Excavation,	851.55

24

Mason and Tender 30 days,	\$ 150.00
3 M. Lumber for Bracing,	60.00
Incidentals and Engineering,	461.67
	<hr/>
	\$2770.02

MAIN STREET.

1460 ft. 15 inch Akron pipe (@ 0.62	\$899.20
20 Bbls. Cement (@ \$1.50	30.00
5 Manholes,	304.00
2 Lampholes,	20.00
Excavation,	1245.75
Mason and Tender 30 days,	150.00
3 M. Lumber for bracing,	60.00
Engineering and Incidentals,	541.79
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	\$3250.74

UNION STREET.

2465 ft. 15 inch Akron pipe (@ 0.62	\$1528.30
38 Bbls. Cement (@ \$1.50	57.00
6 Manholes,	362.00
4 Lampholes,	40.00
Earth Excavation,	1863.85
Rock Excavation, 500 yds	2000.00
Mason and Tender 50 days,	250.00
3 M. Lumber for bracing,	60.00
Engineering and Incidentals,	1232.23
	<hr/>
	\$7393.38

TOTAL COST OF MAIN.

Saranac street,	\$ 2770.02
Main “	3250.74
Union “	7393.38
	<hr/>
	\$13,414.14

HIGH ST. FROM PLEASANT TO SCHOOL.

700 ft. 12 inch Akron pipe @ 0.44	\$ 308.00
425 ft. 10 inch “ “ “ 0.33	140.25
11 Bbls. Cement, @ \$1.50	16.50
7 Manholes,	393.00
2 Lampholes,	40.00
Excavation,	776.25
Mason and Tender 22 days,	110.00
2 M. Lumber for bracing,	40.00
Engineering and Incidentals,	364.80
	<hr/>
	\$2188.80

HIGH ST.—SCHOOL TO ELM.

1117 ft. 10 inch Akron pipe @ 0.33	\$368.61
11 Bbls. Cement, “ \$1.50	16.50
4 Manholes,	212.00
1 Lampholes,	20.00
Excavation,	715.73

26

Mason and Tender 22 days,	\$ 110.00
2 M. Lumber for bracing,	40.00
Engineering and Incidentals,	296.57
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	\$1779.41

SOUTH ST.—COTTAGE ST. SECTION.

433 ft. 10 inch Akron pipe @ 0.33	142.89
9 Bbls.Cement, " \$1.50	13.50
2 Manhole,	114.00
1 Lampholes,	20.00
Excavation,	202.81
Mason and Tender 9 days,	45.00
1 M. Lumber for bracing,	20.00
Engineering and Incidentals,	111.64
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	\$669.84

SOUTH ST.—KILBURN TO BROOK.

1249 ft. 12 inch Akron pipe @ 0.44	\$549.56
541 " 10 " " " " 0.33	178.53
18 Bbls. Cement, at \$1.50	27.00
7 Manholes,	430.00
3 Lampholes,	60.00
Excavation,	1371.15
Mason and Tender 36 days,	180.00
3 M. Lumber for bracing,	60.00
Engineering and Incidentals,	571.25
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	\$3427.49

SOUTH ST.—FROM BROOK WESTERLY.

970 ft. 12 inch Akron pipe @ 0.44	\$ 426.80
10 Bbbs. Cement, " \$1.50	15.00
3 Manholes,	167.00
2 Lampholes,	20.00
Excavation,	669.30
Mason and Tender 20 days,	100.00
2 M. Lumber for bracing,	40.00
Incidentals and Engineering,	287.62
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	\$1725.72

SOUTH ST.—BRIDGE STREET SECTION.

477 ft. 10 inch Akron pipe @ 0.33	\$ 157.41
1023 ft. 12 inch Akron pipe @ 0.44	450.12
15 Bbbs. Cement,	22.50
4 Manholes,	235.00
2 Lampholes,	40.00
Excavation,	1100.00
Mason and Tender 30 days,	150.00
2 M. Lumber for bracing,	40.00
Engineering and Incidentals,	439.00
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	\$2634.03

APTHORP SECTION.—UNION ST., EAST OF
PINE.

2443 ft. 12 inch Akron pipe @ 0.44	\$1074.92
25 Bbbs. Cement, @ \$1.50	37.50
7 Manholes,	350.00
4 Lampholes,	80.00
Excavation,	1710.10

Mason and Tender 49 days,	\$ 245.00
2 M. Lumber,	40.00
Engineering and Incidentals,	705.50
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	\$4243.02

APTHORP STREET.

1218 ft. 12 inch Akron pipe @ 0.44	\$ 535.92
12 Bbbs. Cement, at \$1.50	18.00
3 Manholes,	159.00
2 Lampholes,	20.00
Excavations,	572.46
Mason and Tender 25 days,	125.00
2 M. Lumber,	40.00
Engineering and Incidentals,	294.08
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	\$1764.46

STREET PARALLEL WITH APTHORP ST.

875 ft. 12 inch Akron pipe @ 0.44	\$ 385.00
9 Bbbs. Cement,	13.50
2 Manholes,	106.00
2 Lampholes,	40.00
Excavation,	411.25
Mason and tender 17 days,	85.00
2 M. Lumber for bracing,	40.00
Engineering and Incidentals,	216.15
	<hr/>
	\$1296.90

You will notice that I have not taken into account in these estimates any rock excavation except on Union Street. There was no soundings for ledge taken, and no very marked surface indications ; should ledge or boulders be encountered it will increase these estimates. The prices of Pipe and Cement being variable I have taken about a medium.

SUGGESTIONS IN REGARD TO FUTURE ENGINEERING WORK.

It will be noticed that no catch basins are shown on the maps, their location is dependent upon local circumstances at the time of construction. Whenever a catch basin is built it should be located on the plan.

It will be seen that there are only a few Manholes and Lampholes shown on those streets not profiled, these are dependent upon the change of grade, and cannot be located on plan until the profiles are made and either a Manhole or a Lamphole must be put at every change and not more than 300 feet apart and placed alternately.

All Y branches or connections of any kind should be located when set by measurements from the nearest Manhole and a record made of its size and location either on plan or in a book kept for that purpose.

Respectfully Submitted,

GEORGE H. ALLEN, Civil Engineer.

STATE OF NEW HAMPSHIRE.

In the year of our Lord one thousand eight hundred and ninety three.

AN ACT—To create the Littleton Village District by uniting the present Littleton highway precinct and Littleton fire district.

Be it enacted by the Senate and House of Representatives in General Court convened :—

SEC. 1. The following described territory in the town of Littleton :

Begining at the center of the Curtis Brook, on the Northerly line of Mount Eustis street, thence along the north-westerly line of said street, S. 51 degrees 45 minutes, W., 6 rods, 7 links, thence S. 59 degrees 45 minutes E., 26 rods, 9 links across said street to Cottage street, thence along the north-westerly line of the last mentioned street S. 18 degrees 30 minutes W., 21 rods, thence S. 55 degrees 45 minutes E., across the last named street, 13 rods, 4 links to a point on the north-easterly line of the Bethlehem road, thence N. 17 degrees 30 minutes E., 16 rods, 7 links, thence S. 68 degrees E., 9 rods, thence S. 15 degrees 35 minutes W., 32 rods, to the center of the highway, thence easterly along said highway to the easterly line of Willow street, thence northerly on the easterly line of said street to the south-west corner of L. J. Brown's house lot, thence easterly on his line to his south-east corner, thence northerly on the easterly line of the first tier of lots on Willow street to the south-westerly line of the house lot formerly occupied by Robert Meiner, thence easterly on the first tier of house lots on the south-westerly side of Grove street to the south-east corner of L. E. Dearborn's house lot, thence north-easterly across Grove street, thence S. 51 degrees E. along the north-easterly line of the last-mentioned street, 8 rods, 15 links to the southerly corner of Fred Cheney's house lot, thence N. 37 degrees, 45 minutes E., 24 rods, 17 links to a fence post standing on top of the high bank of Ammonoosuc river, thence N. 9 degrees W., across said river to

the westerly end of the upper railroad bridge, thence upon the right bank of the river to the dam at the Littleton Water and Electric Light Station at Aphthorp, thence up on the right bank of the river 100 rods, thence N. 12 degrees W., 4 rods, to the centre of the Whitefield road, thence westerly along said road to a point opposite the south-easterly corner of the house lot of Myron Elliott, thence N. 7 degrees W., on line of said Elliott and Matthew Hamilton, 23 rods, 19 links to a stone wall, thence S. 61 degrees, 15 minutes W., 25 rods, 14 links, thence north 71 degrees, 15 minutes W., 74 rods, 13 links, thence N. 69 degrees, 45 minutes W., 43 rods, 22 links, to the north-easterly corner of the house lot of Milo Little, thence N. 65 degrees, 15 minutes W., 13 rods, 11 links to land of Anderson Miller, thence N. 56 degrees W. over land of said Miller and that of Mrs. J. A. Hill, 37 rods, 7 links to Palmer Brook, thence up said brook to the north-westerly line of Pleasant street, thence S. 62 degrees W., 31 rods, thence S. 53 degrees W., 7 rods, 22 links, thence N. 39 degrees W., 23 rods, 15 links, across land of A. P. Wallace, thence S. 65 degrees W. 58 rods, across land of said Wallace and Col. Cyrus Eastman, thence N. 21 degrees, 30 minutes W., 32 rods, 18 links to a turnstile between lands of said Eastman and Wm. J. Bellows, thence N. 77 degrees W., 36 rods to the centre of School street, thence S. 33 degrees W. along said street 3 rods, 15 links, thence N. 66 degrees W., 27 rods, 9 links, to the southerly line of land of Ira Parker, thence S. 60 degrees 45 minutes W., 53 rods, 15 links to the center of Oak Hill Avenue, thence N. 41 degrees, 30 minutes W., 14 rods, 17 links to a maple tree standing on the north-westerly line of Elm street, thence S. 60 degrees, 45 minutes W., 12 rods, thence S. 32 degrees, 15 minutes W., 24 rods to the northerly line of High street, thence same course 20 rods, 22 links on the north-westerly line of Elm street, thence N. 59 degrees, 15 minutes W., 9 rods, 5 links, thence N. 22 degrees W., 18 rods on line between the land of Mrs. E. Thayer and F. O. Nourse on the left and that of the Moore estate on the right, to the northerly corner of F. O. Nourse's lot, thence S. 53 degrees, 15 minutes W., 25 rods, 2 links to land of N. Flanders, thence N. 47 degrees, 15 minutes W. 29 rods, 6 links, thence S. 60 degrees, 35 minutes W., 16 rods, thence

north-westerly across the Dr. Chas. Tuttle land to the north-easterly corner of E. D. Sawyer's field, thence north-westerly on the northerly line of said Sawyer's field to the easterly line of Auburn street, thence south-westerly on the easterly line of said street and across Main street to land of Glenwood Cemetery Association, thence south-easterly on the south-westerly line of Main street to the south-easterly corner of said cemetery, thence S. 44 degrees E., 7 rods, 16 links, thence S. 44 degrees W., 5 rods, 14 links, thence S. 38 degrees, 30 minutes E., 7 rods, 9 links, thence S. 37 degrees W., on south-easterly line of H. A. Johnson's land crossing Meadow street, Ammonoosuc river and land of H. L. Tilton 86 rods, 13 links, thence S. 19 degrees E., across the Concord & Montreal railroad, 40 rods, 23 links to the centre of South street, thence same course 12 rods, 10 links, thence N. 81 degrees, 15 minutes E., 25 rods, 4 links, thence N. 88 degrees E., 17 rods, 11 links, thence S. 64 degrees, 15 minutes E., 12 rods, 18 links, thence S. 62 degrees, 30 minutes E., 56 rods, 6 links, thence S. 76 degrees E., 50 rods, 6 links to the Curtis brook, thence up the last-mentioned brook to Mt. Eustis street to the point begun at, shall constitute "The Littleton Village District."

SEC. 2. Upon petition of ten or more legal voters residing in said district the Selectmen shall call a meeting of the legal voters therein in the same manner in which town meetings are required by law to be warned, the notices being posted in two public places in said district. At such meeting the legal voters resident in the territory above described may by vote establish such district, and shall thereupon be invested with all the powers specified in this act.

SEC. 3. The district shall have all the rights, privileges and powers now belonging to the Littleton Highway Precinct and the Littleton Fire District, also all the powers granted to village districts under chapter 53 of the Public Statutes, including the power of lighting and sprinkling its streets, the establishment and maintenance of public parks, aiding or maintaining public reading rooms, the planting and caring for shade and ornamental trees and shrubs, and the raising of money for Fourth of July celebrations and music for public purposes.

SEC. 4. All property belonging to the Littleton Highway Precinct and the Littleton Fire District shall become the property of the Littleton Village District, which shall assume and satisfy all indebtedness or liabilities of the highway precinct and fire district.

SEC. 5. The voters at said meeting, and at each annual meeting, shall elect by ballot a moderator, clerk and three commissioners, one of whom shall be elected at the first meeting for one year, one for two years, and one for three years, and after the first year one shall be elected at each annual meeting for a term of three years. All of said officers shall be elected by a plurality of votes. Said officers shall exercise in relation to district meetings the like powers to those of moderator, clerk and selectmen of towns. The clerk shall have in said district the same powers, and perform the same duties, as the clerk in towns. The commissioners shall have, within the district, all the powers of mayor and aldermen of any city respecting highways, sidewalks and sewers; also, all the powers of firewards as prescribed in chapter 115 of the Public Statutes. They shall control and direct the expenditure of all monies raised under authority of the district and by the town for expenditure in the district. They shall have sole authority to appoint a highway surveyor in said district, and in default of such appointment shall themselves perform the duties of that office. The surveyor or commissioners performing the duties of highway surveyor in the district shall give bond to the town to account for all money coming into their hands and for the proper care and custody of the property of the town or district which may come into their custody or control, and shall be deemed officers of the town. Nothing in this act shall be construed to impose any distinct or special liability upon the district respecting highways which is not by law imposed on any other highway district in said town. Vacancies that may occur in the office of commissioner in the district shall be filled by appointment by the remaining commissioners or commissioner, but any commissioner appointed to fill a vacancy shall hold office only until the next annual district meeting. Commissioners shall be residents of the district and at all times elections and appointments to that office shall be so made that at least one

member shall be of each of the two political parties casting the largest and the next largest vote at the last biennial election in town.

SEC. 6. The commissioners may, if they think proper, appoint a chief engineer and two assistant engineers, who shall perform at fires the duties now devolving upon fire-wards, or fire engineers.

SEC. 7. The district at its annual meeting shall determine what amount of money in addition to the highway taxes to be levied by the authority of the town shall be raised in the district, and what amount shall be raised for the sewers, but this shall not derogate from the right of the town to raise the highway taxes for maintenance of highways in labor outside of the limits of the district. All taxes for sidewalks, highways and sewers in the district shall be raised in money, whether by authority of the town or district. Nothing in this act however, shall be construed to derogate from the powers of the town and selectmen to provide for ordinary and extraordinary repairs of bridges, culverts, highways and embankments, and for the construction of new highways that may be laid out in town.

SEC. 8. Said district may vote to raise money at any meeting in addition to the amount raised by the town for expenditure in the district for any lawful purposes, including the making and repairing of highways, sidewalks and sewers in the district, to purchase materials, tools and apparatus, to purchase and lease land and buildings, to erect suitable buildings for the use of the district, but the land purchased for district buildings and storage of its property shall not exceed one-half acre. If a suitable location cannot be procured for said purposes at a reasonable price, it may be laid out and taken in the same manner as is provided in respect to taking land or buildings for the use of fire districts. The district may by vote raise money and appropriate the same in carrying out the provisions of chapter 79 of the Public Statutes in said district. All votes to raise money by taxation shall be certified by the clerk of the district and seasonably transmitted to the selectmen of the town, and the sums so voted shall be assessed, collected and paid

over from the town treasury upon the order of the selectmen to the district commissioners in the same manner as the taxes in Union school district in said town now are raised, collected and paid over. All highway and sewerage taxes levied in the district shall be collected in money by the collector of other taxes in town and in the first instance, paid into the town treasury. A separate account of the same shall be kept by the town treasurer, but said funds shall be expended and accounted for by the district commissioners.

SEC. 9. The commissioners, upon authority given them by vote of the district at any annual or special meeting, may borrow money upon the credit of the district, to be used only for the purposes of the district, upon such time of credit, at such rate of interest, and to such an amount, as may by vote of the district be specially authorized.

SEC. 10. The district commissioners shall annually prepare and submit, in printed pamphlets, a detailed account of all their transactions, their receipts and expenditures, itemized statements of the prices paid for labor and material, to whom, for whom, and for what all such payments have been made, a statement of the indebtedness of the district, if any exists, and a statement of all outstanding bills due or claimed to be due against the district at the close of the fiscal year. Such accounts shall be audited by the town auditors before the first day of March in each year, and in their report said auditors shall state in regard to any illegal expenditures that they may find in the transaction of the commissioners, or of the surveyor, in the district. The fiscal year for the district shall end on the first day of March. The annual meeting shall be holden in the month of March, after the second Tuesday. In the case of the failure of the proper officers to call the annual meeting in time for its holding in the period limited by this act, it shall be called in the manner prescribed in case of similar lapses in fire districts. In every case vouchers shall be taken for district funds paid out.

SEC. 11. Upon the petition of twenty voters in the district, the selectmen and supervisors shall cause a check-list to be

prepared and used at the annual district meeting in the same manner as is provided for the use of check-lists in meetings of school districts : provided, that such petition shall be filed fourteen days at least prior to the time of the annual March town meeting. At special district meetings the check-list as corrected for the last annual or biennial meeting in town, shall be used upon petition of twenty legal voters addressed to the supervisors of check-lists.

SECT. 12. The boundaries of the district may be extended in the same manner as is now provided by law in the case of fire districts.

SECT. 13. All acts and parts of acts inconsistent with the provisions of this act are hereby repealed.

SECT. 14. This act shall take effect upon its passage.

ANNUAL REPORT
OF THE
FIREFWARDS AND TREASURER
OF THE
LITTLETON
FIRE
DISTRICT
FOR THE
FISCAL YEAR ENDING MARCH 1, 1893.

LITTLETON, N. H.:
REPUBLIC-JOURNAL BOOK AND JOB PRINT.
1893.

OFFICERS FOR 1892-3.

MODERATOR.

A. S. BATCHELLOR.

CLERK.

SAMUEL W. HODGMAN.

FIREWARDS.

HENRY A. EATON, Chief.

FRANK E. BOWLES, Clerk.

MILLARD F. YOUNG, Treasurer.

DR. GEORGE W. MCGREGOR,

DANIEL C. REMICH.

FIREMEN FOR 1892-3.

ELBRIDGE C. YOUNG, Foreman.

S. W. HODGMAN, First Asst. Foreman.

A. E. STRAIN, Second Asst. Foreman.

F. L. CLOUGH, Secretary and Treasurer.

FRED GONYER, Janitor.

HUGH D. WILKINS.

EVERETT R. WEST.

L. I. BROWN.

CHARLES STRAIN.

CHARLES C. CLOUGH.

B. H. PENNOCK.

L. E. STEVENS.

EDGAR RIX.

G. W. SOUTHWORTH.

GEORGE GLODE.

JOHN GOYNER.

FRED BERRY.

WILL BEBEE.

WALTER PIERCE.

WILL RICHARDSON.

LITTLETON FIRE ALARM.

LOCATION OF BOXES.

No. 42, Corner of Union Street and Lafayette Avenue.

No. 43, Corner of Cottage and South Streets.

No. 44, Near the entrance to the Opera House.

No. 45, Corner of High and School Streets.

No. 46, Saranac Street near Edward Buckley's.

No. 47, Main Street near William Blake's.

DIRECTIONS.

The glass covered box on side of alarm boxes contains the key; get the key by breaking glass, and open alarm box; pull down the hook, letting go at once. For second alarm pull down the hook after first alarm has rung.

The alarm will indicate the station from which the signal was given. Thus, a signal given at Station No. 42, will be sounded by four strokes of the bell, followed by two strokes. This will be repeated so that notice will be clearly given that a fire has broken out in the vicinity of Station 42, if that be the case, because the alarm sounds a *four*, by four strokes of the bell and a *two*, by two strokes of the bell. In this way Station *Forty-two* is indicated. The other stations will be indicated in a similar manner, the second number struck by the alarm bell corresponding to the number in unit's place, either 2, 3, 4, 5, 6, or 7, as the case may be.

WARRANT FOR ANNUAL MEETING.

1892.

(L. S.) STATE OF NEW HAMPSHIRE.

To the Legal Voters of the Littleton Fire District qualified to vote in district affairs:

You are hereby notified and warned to meet at the Hose House in said Littleton on Tuesday, the twenty-ninth day of March, instant, at seven o'clock p. m., to act upon the following subjects, viz:—

- First. To choose a moderator for the ensuing year.
- Second. To choose a clerk for the ensuing year.
- Third. To choose five firewards for the ensuing year.
- Fourth. To see how much money the district will vote to raise for the prevention and extinguishment of fires.
- Fifth. To see how much money the district will vote to raise for sprinkling the streets.
- Sixth. To hear the reports of any officers, agents or committees heretofore appointed, and to take any action relating thereto that may be necessary.
- Seventh. To see what action the district will take, or what regulation it will make in regard to the management of the fire alarm apparatus.
- Eighth. To see what action the district will take in regard to paying the members of the Fire Department for services heretofore rendered outside the district.
- Ninth. To act upon any other subjects that may regularly come before said meeting.

Given under our hands and seal this eighth day of March, A. D., 1892.

E. C. YOUNG,	} Firewards.
W. M. SILSBY,	
H. A. EATON,	
J. A. FOGG,	

RECORD OF ANNUAL MEETING HELD MARCH 29, 1892.

The meeting was called to order by A. S. Batchellor, Moderator, who read the warrant, and the following business was transacted :

I. Chose by ballot A. S. Batchellor, Moderator, who being present in open meeting took the oath of office.

II. Chose by ballot S. W. Hodgman, Clerk for the ensuing year, who being present in open meeting took the oath of office.

III. Chose by ballot the following named persons as firewards for the ensuing year: E. C. Young, M. F. Young, D. C. Remick, F. E. Bowles, and G. W. McGregor. E. C. Young declined to serve and H. A. Eaton was chosen by ballot to fill his place. G. W. McGregor and H. A. Eaton being present in open meeting took the oath of office.

IV. On motion of James Jackson it was voted that articles Four and Five of the warrant be considered together.

V. On motion of Mr. Jackson it was voted that the sum of \$2,500 be raised for the prevention and extinguishment of fires, sprinkling the streets, and payment of debt.

VI. On motion of Mr. Bellows it was voted that the Firewards be authorized to exchange the old sprinkler for a new one, provided they find it undesirable to repair the old one, paying the difference in exchange.

VII. On motion of C. C. Smith it was voted to accept the report of the committee on fire alarm, as printed in the annual report, and that the committee be discharged.

VIII. On motion of Mr. Bellows it was voted that the firewards be authorized to purchase such extension ladders for the use of the district as they may find advisable.

IX. On motion of James Remick it was voted that the matter embodied in Article Seven of the warrant in regard to the management of the fire alarm apparatus be left to the firewards.

X. On motion of Mr. Jackson it was voted that the firewards be authorized to pay a sum not exceeding \$25.00 to the firemen for services heretofore rendered outside the district.

XI. On motion of James Remick it was voted that the streets be sprinkled by contract, that the contract be in writing, and that a good bond be required for its faithful performance.

XII. On motion of James Remick it was voted that the firewards procure the annexation to the district of such property as is now outside of the district, as can be included and protected at reasonable expense.

XIII. On motion of James Remick it was voted that the firewards be instructed to procure two accurate plans of the district to be made, showing definitely the boundaries of the district and the location of all hydrants and standpipes, one of said plans to be lodged and kept in the Town Clerk's office and the other with the clerk of the district.

XIV. On motion of James Remick it was voted that the Firewards be instructed not to make any further payments to the water company until they place hydrants where in the judgment of the Firewards they are necessary for the reasonable protection of property in the district, and where the district is entitled to have them under the existing contract, nor until said company have put in pipes sufficient in size and location to furnish a reasonable supply of water for fire purposes throughout the district. This vote not to go into effect until July 1, 1891.

XV. On motion of O. G. Hale it was voted that the Firewards be authorized to borrow a sum not to exceed \$300 on the credit of the district, if necessary, to carry out the votes of this meeting.

Voted to adjourn.

A true record. Attest,

S. W. HODGMAN, Clerk of District.

REPORT OF THE FIREWARDS.

To the Inhabitants of Littleton Fire District:

The Firewards beg leave to report that they have attended to the duties incumbent upon them during the past year to the best of their ability, and while they have not accomplished all that they would like, they believe that some progress has been made in the improvement of the district and its facilities for fighting fires and sprinkling the streets.

The fire company is well organized and composed of good material, and is working harmoniously. A new and modern sprinkler, and an extension ladder have been added to the equipment of the department, a plan of the district obtained, and a large amount of territory and taxable property annexed to the district, a description of which by metes and bounds will appear in the printed report. The water and hydrant system has also been materially extended by the Electric Light & Water Company, pipes having been laid upon Pleasant street to Pine street, on High street to Church street, on Cottage street to a point near George Abbott's house, and on Lafayette street, and hydrants have been put in upon these extensions. They have not yet been contracted for by the district. Your Firewards deeming it necessary that further extensions and changes should be made in the system before the completion of any further contract with the Water Company, on the 20th day of October, 1892, made the following demand upon them:

TO THE LITTLETON ELECTRIC LIGHT AND WATER COMPANY:

You are requested to take up the four-inch pipe now laid from a point near the bridge on Cottage street to the road above B. W. Kilburn's shop, and replace it with at least a six-inch pipe, the one now laid being entirely insufficient to furnish a "reasonable supply of water for fire purposes" in that section, as provided in your contract with the district. This is demanded as a matter of right.

We also request you to lay a four-inch pipe from your main line near the Grange Hall, up Pine street, to a connection with the pipe now laid on Pleasant street ; also lay a four-inch pipe from the main line on Main street, up Elm street, and along High street to a connection with the pipe now laid on High street near Edgar Aldrich's corner.

If these requests are promptly complied with, we agree for the Littleton Village Fire District (if we have the legal right to bind the district by contract for such a purpose) to take for said district the hydrants recently put in by said company, and two others, one on Elm street, near John Ragan's house, and one on Union street, between the Grange Hall and Charles Farr's, and pay said company \$35 per year for the use of each of said hydrants from the date of compliance with these requests, until April 25, 1897, the date of the expiration of the present written contract between the company and the district. The said company binding itself, its successors and assigns to keep said hydrants in good order and repair, and to guarantee a reasonable supply of water thereto for fire purposes.

If we have not the legal authority to bind the district in this behalf, we agree to use all our influence to obtain such authority for ourselves or successors, at the next annual meeting of the district.

D. C. REMICH,	}	Firewards of
F. E. BOWLES,		Littleton
M. F. YOUNG,		Village
G. W. MCGREGOR,		Fire
H. A. EATON,		District.

In response to this demand we have received the following letter from the President of the company and have been personally assured that as soon as the ground opens in the spring the extension and changes suggested by us in our communication of October 20 will be complied with :

LITTLETON, N. H., Nov. 12, 1892.

To the Firewards of Littleton.

Replying to your communication of October 20, subject to further extension and relaying water pipes within the present precinct and additions to be made to said precinct.

I am directed to say to you that the Company is disposed to comply with your request as soon as practicable to do the work.

Respectfully yours,

(Signed)

B. H. CORNING.

In closing we desire to suggest that the fire alarm system should be further extended so that all portions of the district may receive reasonable benefits therefrom, and that a competent and disinterested expert be obtained to make a careful examination of our facilities for extinguishing fires and to make a written report thereon, in which he shall suggest what, if any, changes are reasonably necessary for the protection of property within the district. Your Firewards are of the opinion that an eight-inch pipe on School street from the reservoir, the six-inch pipe on Main street, and the four-inch pipe on Mill and Saranac streets, are entirely inadequate to afford reasonable protection to the property exposed to destruction in the compact and business portion of the town.

Respectfully submitted,

HENRY A. EATON,	}	Firewards.
FRANK E. BOWLES,		
MILLARD F. YOUNG,		
GEORGE W. MCGREGOR,		
DANIEL C. REMICH.		

ADDITIONS TO THE DISTRICT NOVEMBER 19, 1892.

“Beginning at the centre of Curtis Brook on the northwesterly line of Mt. Eustis street, thence south 51 degrees, 45 minutes west six rods, seven links on the northwesterly line of said street, thence south 59 degrees, 45 minutes east, 26 rods, nine links across said street to Cottage street, thence on the northwesterly line of Cottage street south 18 degrees, 30 minutes west, 21 rods, thence south 55 degrees, 45 minutes east across Cottage street 13 rods, four links to a point on the northwesterly line of the Bethlehem road, thence north 17 degrees, 30 minutes east, 16 rods, seven links, thence south 68 degrees, east nine rods, thence south 15 degrees, 35 minutes west 32 rods to the centre of the highway leading from Cottage street to Willow street, near Lemuel Phillips’, thence on the old line of the fire district to the southerly corner of Henry Langdon’s lot, thence south 51 degrees, east five rods, 15 links along the northeasterly line of Grove street to the southerly corner of Fred Cheney’s new house lot, thence north 37 degrees, 45 minutes east 24 rods, 17 links to a fence post standing on the top of the high bank of Amonoosuc river, thence north nine degrees west across said river to the westerly end of the upper railroad bridge, thence on the old line of the fire district to a stake and stones at the foot of the river bank on land of George Bunker, thence up the right bank of said river to the centre of Palmer brook, thence up the last mentioned brook across Union and Pleasant streets to the northwesterly line of Pleasant street, thence south 62 degrees west, 31 rods, thence south 53 degrees west, seven rods, 22 links, thence north 39 degrees west 23 rods, 15 links across land of A. P. Wallace, thence south 65 degrees west 58 rods across land of Wallace and Eastman, thence north 21 degrees, 30 minutes west, 32 rods, 18 links to a turstile situated between land of Eastman and Bellows, thence north 77 degrees west 36 rods to the centre of School street, thence south 33 degrees west three

rods, 15 links along said street, thence north 66 degrees west 27 rods nine links to the southerly line of land owned by Ira Parker, thence south 60 degrees 45 minutes west 53 rods, 15 links on said Parker's line to the centre of the proposed extension of Oak Hill Avenue, thence north 41 degrees, 30 minutes west, 14 rods, 17 links to a maple tree standing on the northwesterly line of the proposed extension of Elm street, thence south 60 degrees, 45 minutes west 12 rods, thence south 32 degrees, 15 minutes west 24 rods to the northerly line of High street, thence the same course 20 rods, 22 links on the northwesterly line of Elm street to the northeasterly corner of Emily Thayer's land, thence north 59 degrees, 15 minutes west nine rods, five links, thence north 22 degrees west, 18 rods on line between lands of Mrs. E. Thayer and F. O. Nourse on the left and the Moore estate on the right, to said Nourse's northwesterly corner, thence south 53 degrees, 15 minutes west 25 rods, two links on said Nourse's line to land of N. Flauders, thence north 47 degrees, 15 minutes west, 29 rods, six links, thence south 60 degrees, 35 minutes west, 16 rods to old line of fire district, thence on old line of fire district to the point begun at."

RAY T. GILE, Surveyor.

CHARLES F. EASTMAN,	} Selectmen of Littleton.
JOHN T. SIMPSON,	
HENRY F. GREEN,	

REPORT OF M. F. YOUNG, TREASURER OF LITTLETON FIRE DISTRICT, FOR THE YEAR
ENDING MARCH 1, 1893.

RECEIPTS.

1892.

March 9	Received of W. M. Silsby, treasurer 1891-2,	\$ 5 96
April 29	“ “ Littleton National Bank on note,	98 95
	“ “ G. A. Edson, town treasurer,	2,500 00

1893.

Jan. 4	Littleton Savings Bank, on note,	900 00
Feb. 28	“ “ “ “	178 32
		<hr/>
		\$3.683 23

DISBURSEMENTS.

Paid	S. W. Hodgman and Elbridge Young, work on fire alarm and striking daily alarm,	\$92 81
	George M. Stevens, supplies for fire alarm,	29 35
	Express on supplies for fire alarm,	2 75
	W. F. Robins, one bbl. blue vitriol and freight on same,	31 50
	Littleton Lumber Company, lumber used for fire alarm purposes,	6 80
	I. C. Richardson. one year rent hose house,	250 00
	“ team to draw hose from fire,	1 00
	Hose Company, for services from November 1, '91 to March 1, '93,	425 68
	M. M. Little, sprinkling streets,	150 33
	George M. Cleasby, do	16 36
	Fred Gonyer, janitor hose house,	6 75
	Electric Light & Water Company, for hydrants and stand pipes,	1,562 27
	Miller Kuoblock Wagon Co., for sprinkler,	322 55
	Freight on fixtures for sprinkler,	2 45
	Bangor Extension Ladder Company,	135 00
	Freight “ “	2 45

Journal Publishing Company, printing reports of 1891-2,	\$38 25
William Taylor, inspecting buildings,	3 20
Ray T. Gile, plan and survey,	31 25
Enamel cloth to cover plan,	40
W. I. Richardson, surveying precinct boundary,	3 50
Frieght on hose and glass jars,	1 04
Coal, wood and oil for hose house,	32 77
Harry L. Heald, services in connection with annexation,	4 00
W. H. Colby, printing bill,	8 30
Littleton National Bank, note,	100 00
Littleton Savings " " and interest given 1891,	318 15
Smith & Lynch, hardware,	16 82
A. J. Cram, watching 25 nights at \$1.50,	37 50
Salary of Firewards,	50 00
	<hr/>
	\$3,683 23

LIABILITES OF DISTRICT, MARCH 1, 1893.

Littleton Savings Bank, note dated January 4, 1893, and accrued interest,	\$907 15
Littleton National Bank, note dated February 28, '93,	178 32
	<hr/>
	\$1,085 47

LIST OF FIREWARDS 1873-4 TO 1882-3, INCLUSIVE.

1873.

B. W. Kilburn, E. D. Dunn, Charles Nurse, Joseph L. Whittaker, Chauncy H. Green.

B. W. Kilburn resigned and Charles C. Smith was elected to fill the vacancy.

1874.

E. D. Dunn, Charles Nurse, C. C. Smith, J. L. Whittaker, C. H. Green.

1875.

Charles Nurse, Ellery D. Dunn, Curtis C. Gates, Chauncy H. Green, Joseph L. Whittaker.

1876.

Ellery D. Dunn, Charles Nurse, Curtis Gates, Charles F. Everett, George C. Coburn.

1877.

Ellery D. Dunn, Chauncy H. Green, Curtis Gates, Charles F. Everett, Josiah M. Ladd.

1878.

Ellery D. Dunn, Chauncy H. Green, Josiah M. Ladd, Henry W. Smith, Curtis Gates.

1879.

Ellery D. Dunn, Curtis Gates, Chauncy Green, Henry W. Smith, Josiah M. Ladd.

1880.

Harry A. Johnson, Ira Parker, Frederick A. Tilton, Josiah M. Ladd, Henry M. Smith.

Ira Parker refused to qualify for the office of Fireward, and William A. Bellows was chosen to fill the vacancy.

1881.

Ellery D. Dunn, Elbert C. Stevens, Fred A. Tilton, Chas. Eaton, William H. Chandler.

1882.

Fred A. Robinson, Noah W. Ranlett, George L. Whittaker, Cyrus Young, Joseph S. Frye.

Fred A. Robinson resigned and Dexter H. French was elected to fill the vacancy.



